In the Claims:

1. (Currently amended) A high-efficiency phosphor from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M contains Sr as a constituent and where D is a divalent doping comprising europium, ~~characterized in that~~ wherein Sr alone or $Sr_{(1-x-y)}Ba_YCa_x$ with $x+y < 0.5$ is used for M, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification HT.

2. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein the Eu fraction makes up between 0.1 and 20 mol% of M.

3. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein Sr represents the majority of M and a proportion of M, in particular up to 30 mol%, is replaced by Ba and/or Ca.

4. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein Sr represents the majority of M and a proportion of M, in particular up to 30 mol%, is replaced by Li and/or La and/or Zn.

5. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein part of the group SiN in the oxynitridosilicate of formula $MSi_2O_2N_2$, in particular up to 30 mol%, is replaced by the group AlO.

6. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein a proportion of Eu, in particular up to 30 mol%, is replaced by Mn.

7. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein the level of W and Co impurities is as low as possible and is in particular in each case less than 100 ppm, preferably less than 50 ppm, with respect to the precursor substances.

8. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein more than 70%, in particular more than 85%, of the oxynitridosilicate consists of the HT modification.

9. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein the oxynitridosilicate predominantly comprises the HT modification, and in that the proportion of foreign phases amounts to less than 15%.

10. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein the full width at half maximum (FWHM) of the emission from the phosphor under photon excitation which originates from a range with peak emission between 50 and 480 nm is less than 90 nm.

11. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein in its XRD spectrum, the level of foreign phases is minimized in accordance with the rule that with the XRD diffraction angle 2 in the range from 25 to 32°, the intensity of all the foreign phase peaks is less than 1/3, preferably less than 1/4, particularly preferably less than 1/5, of the intensity of the main peak characterizing the HT modification at approximately 31.8°.

12. (Currently amended) The phosphor as claimed in claim 1, ~~characterized in that~~ wherein in its XRD spectrum the proportion of the LT phase is minimized in accordance with the rule that the characterizing peak of the LT modification in the XRD spectrum at approximately 28.2° has an intensity of less than 1:1, preferably less than 1:2, compared to the peak with the highest intensity from the group of three reflections of the HT modification which lie in the XRD spectrum at 25 to 27°.

13. (Currently amended) A light source having a primary radiation source which emits radiation in the short-wave region of the optical spectral region in the wavelength range from 50 to 480 nm, this radiation being completely or partially converted into secondary radiation of a longer wavelength, in particular in the visible spectral region, by means of at least a first phosphor as claimed in claim 1 ~~one of the preceding claims~~.

14. (Currently amended) The light source as claimed in claim 13, ~~characterized in that~~ wherein the primary radiation source used is a light-emitting diode based on InGaN.

15. (Currently amended) The light source as claimed in claim 13, ~~characterized in that, moreover,~~ wherein some of the primary radiation is converted into radiation of a longer wavelength by means of a further, second phosphor, with ~~in particular the two phosphors, namely~~ the first phosphor and the second phosphor[[,]] being selected and mixed in a suitable way to generate white light.

16. (Currently amended) The light source as claimed in claim 13, ~~characterized in that in addition~~ wherein some of the primary radiation is converted into radiation of a longer wavelength by means of a third phosphor, this third phosphor emitting in the red spectral region, in particular with a peak in the range from 580 to 670 nm.

17. (Currently amended) A process for producing the high-efficiency phosphor as claimed in claim 1, ~~characterized by the following process steps~~ comprising the steps of:

a) providing the starting products SiO_2 , Si_3N_4 , remainder MCO_3 , as well as a Eu precursor, in a substantially stoichiometric ratio and mixing the products; and

b) annealing the mixture at approximately 1300 to 1600°C, preferably 1450 to 1580°C.

18. (Currently amended) The process as claimed in claim 17, ~~characterized in that~~ wherein the starting products have a high purity with respect to W and Co of less than 100 ppm.

19. (Currently amended) The process as claimed in claim 17, ~~characterized in that~~ wherein the starting products have a high reactivity of at least 6 m^2/g BET surface area.

20. (Currently amended) The process as claimed in claim 17, ~~characterized in that~~ wherein the stoichiometric batch of all the components is accurately maintained to within at least 10%.